

motion caused by chemical action, but points rather to its connection with the process of fecundation. A few hours afterwards all the archegonia had their orifices brown, the motion before it had ceased, but many were filled with a granular mass, which I must regard as the molecules now at rest.

It is remarkable that the development of the androspores is in general slower than that of the gynospores. Whilst protruding they all contained starch grains. Later, many were filled with cellular substance, which, with iodine, was coloured yellow. The cells on opening emanated either in their entirety and showed a granular content, or, instead of this, the inner parts of the spore had disintegrated into little yellow granules, with remains of the molecules rotating in the orifice of the archegonium. The case, that cells were evacuated similar to those of the moving spiral filaments, was, in the beginning, of rarer occurrence than afterwards.

The prothallia showed now a rapidly progressing development. Already, after twenty-four hours, it formed numerous radical fibres. Then an excrescence of the prothallia took place into a many-lobed, irregular body, from the depressed vertex of which the archegonium orifice often emanated to considerable height.

ART. XXXIV.—*Notes on Gastrolobium grandiflorum.*

By FERDINAND MUELLER, M.D., F.R.S.

[Read 18th July, 1864.]

The poison plant, of which specimens for my inspection were submitted by the Royal Society of Victoria, and which proved so detrimental to the herds and flocks in some places on the Cape River, and on the sources of the Burdekin and Flinders River, is botanically known as *Gastrolobium grandiflorum*. It is a leguminous bush, several feet high, with orange-yellow flowers, the latter imparting to it a very ornamental aspect. J. Macdouall Stuart, the famous explorer, brought the first specimens from Attack Creek, south of Arnhem's Land, and from these the species was established in the *Fragmenta Phytographiæ Australiæ*, iii. 17. It is much to be feared; that this plant has a wide range through the interior of tropical Australia (though it was not met with on the route of the expedition to which I was attached), and

not unlikely Leichhardt had to encounter it during his last expedition. The occupants of territory in which the plant occurs may now, however, guard to some extent against this vegetable bane, since the plant has become widely known, nor is it unlikely that by setting fire repeatedly to the vegetation of the scrubby ridges on which it grows, that it may be extirpated. *Gastrolobium grandiflorum* is the only species of the genus as yet found beyond south-west Australia, where several congeners (for instance, *G. bilobum*, *G. calycinum*, *G. callistachys*, *G. oxylobioides*), on account of their poisonous properties, render extensive tracts of the country unoccupiable. I shall have a future occasion to enter on detailed statements of the effects of the *Gastrolobia* on the animal frame, and give also the results of the chemical analysis of these plants. Expositions of the highly deleterious effect of the *Swainsona Greyana*, which as a pasture herb on the Darling flats, frequently causes the death of horses during dry seasons, when other herbage fails, as well as an explanation of the deadly effect of the *Lotus Australis*, causing, when grown and depastured in certain localities, sheep to perish within half an hour, may, as referring likewise to leguminous plants, then come simultaneously within the precincts of my elucidation.

ART. XXXV—*Yarra Floods and their Remedy.* By
ROBT. ADAMS, Esq., C.E.

[Abstract of Paper read 16th July, 1864.]

In this paper I propose to examine into the various means that have been suggested for preventing Floods in the River Yarra, and to bring before the Society a scheme that I confidently believe would thoroughly meet the difficulty.

The first object to be attained, is clearly, I think, to select the most suitable point of ultimate discharge of the flood waters into the Bay. There are only four sites possible for an outlet. First, the Yarra mouth; second, between the Yarra mouth and the Sandridge railway, at or near the site proposed as an entrance for a ship-canal in 1853; third, at the Sandridge lagoon; fourth, at a spot a little to the westward of St. Kilda. Amongst these four sites an outlet must be selected. Whatever means may be adopted by an artificial channel or otherwise, to bring the flood waters from